

Claims

1. A method of performing power amplification under variable envelope excitation, comprising the steps of:
 - 5 converting an original input signal at least into a phase modulated signal part; feeding at least the phase modulated signal part to an input port of an amplifier unit; and
 - amplifying the input signal by dynamically selecting a fixed power supply for the amplifier unit, wherein the amplitude content of the original input signal is
 - 10 reconstructed by changing dependent on the respective provided power supply a further controllable input of the amplifier unit, in particular the input power level and/or the biasing voltage and/or biasing current at the control input of the amplifier unit, during said step of amplifying.
2. The method of Claim 1, further characterized in that the dynamical selection
- 15 of a fixed power supply is performed by switching between at least two different fixed supply currents or supply voltages, in particular by taken into account the difference in providing gain.
3. The method of Claim 1, further comprising the step of operating the amplifier unit with the phase modulated signal part in a non-overdriven condition.
- 20 4. The method of Claim 1, further comprising the step of compensating non-linearity by pre-distorting the power supply for the amplifier unit and/or by pre-distorting the amplifier unit biasing voltage and/or biasing current at the control input.
5. The method of Claim 1, further comprising the step of lowpass filtering of a control signal for providing the changeable amplifier unit biasing voltage and/or
- 25 biasing current at the control input with a cut-off frequency close to the modulation bandwidth of the original input signal.
6. The method of Claim 1, further comprising the step of converting the original input signal into an amplitude modulated signal part, according to which the input power level is changed.
- 30 7. A power amplifier comprising
 - at least a final amplifier unit;
 - means for feeding at least the phase modulated signal part of an original input signal to the input port of the amplifier unit;
 - at least two selectable power supply units with different fixed output powers
 - 35 connected to the supply port of the amplifier unit;

means for dynamically selecting a total supply power by selecting the respective power supply unit or units; and

means for controlling dependent on the respective selected supply power a further amplifier unit input, in particular the input power level and/or the biasing
5 voltage and/or biasing current at the control input of the amplifier unit.

8. The power amplifier of Claim 7, wherein each of the power supply units comprises a DC/DC converter and/or is connected to the supply port in parallel and/or is selected by a common digital signal processor.

9. The power amplifier of Claim 7, wherein a linear regulator is used to control
10 the amplifiers biasing voltage and/or current at the control input and/or wherein a control path with a lowpass filter for controlling the amplifier unit input biasing voltage and/or biasing current is comprised.

10. The power amplifier of Claim 7, wherein the means for controlling the amplifier unit input power level comprises a digital signal processor and/or the means
15 for controlling the amplifier unit input biasing voltage and/or biasing current comprises a digital signal processor and a D/A converter.